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Storm Prediction Center mesoscale discussion 329

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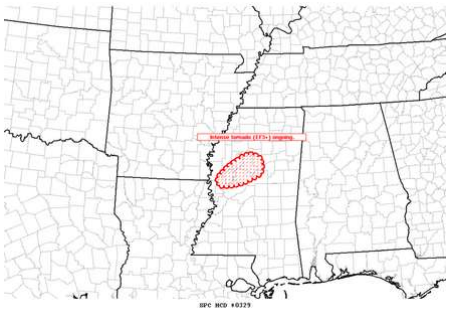
During the evening of March 24, 2023, the Storm Prediction Center issued a short but urgent meso—gamma mesoscale discussion specifically pertaining to the violent Rolling Fork—Silver City EF4 tornado, which was ongoing at the time of issuance.[1][2] The Storm Prediction Center originally issued the discussion for the wrong storm, but quickly corrected it.[1]



The mesoscale discussion issued by the Storm Prediction Center while the Rolling Fork—Silver City EF4 tornado was ongoing.

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Background

A tornado watch was issued at 5:15 p.m. CDT for portions of eastern Arkansas, northeastern Louisiana, central and northern Mississippi, and western Tennessee. The watch mentioned the possibility of several strong to intense tornadoes with any persistent supercells.[3] Clusters of storms evolved along the confluence bands in conjunction with improving wind shear profiles. However, given their displacement from the surface low and better forcing, there was some uncertainty as to whether they would become better organized.[4] A strengthening low-level jet and surface moisture increased confidence in the maturation of these cells,[5] but tornadic development had not yet begun in the area as of 0000 UTC.

At their 0100 UTC outlook, the Storm Prediction Center lowered the probability of tornadoes to a 10% (significant) tornado area, thus downgrading the moderate risk to an enhanced risk. The SPC cited weaker-than-expected instability in the area, with increased confidence in only limited buoyancy developing. However, the same update noted that "a couple of longer-track supercells" and "a few

strong tornadoes" remained possible.[6] As the update was being issued, a significant supercell evolved across western Mississippi, producing the long-tracked and deadly high-end EF4 tornado, with winds estimated at 195 miles per hour (314 km/h).[7]

The mesoscale discussion

Discussion text

Mesoscale Discussion 0329[1]

NWS Storm Prediction Center Norman OK 0824 PM CDT Fri Mar 24 2023

Areas affected...North-central MS

Concerning...Tornado Watch 76...

Valid 250124Z - 250215Z

CORRECTED FOR ERROR IN SPATIAL DELINEATION

The severe weather threat for Tornado Watch 76 continues.

SUMMARY...An intense tornado (EF3+) is likely ongoing with a supercell tracking northeastward across western Sharkley County MS, and this storm should persist for the next 30-60 min.

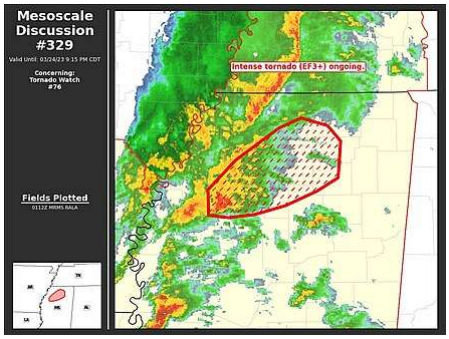
DISCUSSION...Latest radar data shows an organized cyclonic supercell tracking northeastward across western Sharkley County MS, with a VROT above 70 kt and well-defined TDS up to 13k ft -- indicative of an intense tornado (EF3+) given the parameter space (STP of 4). The downstream environment features a large, clockwise-curved hodograph per DGX VWP (around 430 m2/s2 0-1 km SRH) amid rich boundary-layer moisture. This will support the maintenance of this intense supercell toward the northeast for the next 30-60 min.

..Weinman.. 03/25/2023

Discussion meaning and impact

While the violent EF4 tornado was on the ground, the Storm Prediction Center issued mesoscale discussion #329. In the discussion, they stated that radar showed debris was being lofted at least 13,000 feet (4,000 m) into the air and a vertical rotation of 70 knots (81 mph; 130 km/h) was also being detected. The SPC also indicated that this was likely an intense tornado, at least EF3 on the Enhanced Fujita scale, solely based on the Doppler radar data.[8][9] The discussion concluded by noting that the downstream atmospheric environment would allow the storm producing the violent EF4 tornado, to persist for 30 to 60 minutes.[1]

The tweet from the Storm Prediction Center regarding mesoscale discussion 329 was viewed over 95,000 times.[10] Incidentally, the original mesoscale discussion graphic, which was posted on Twitter, was for the wrong storm. This was pointed out by the chief meteorologist for KTVE, Jarod Floyd.[11] This error was seen by SPC forecaster Elizabeth Leitman, and was quickly corrected, with the discussion noting that it "corrected for spatial delineation".[1][12]



The mesoscale discussion issued by the Storm Prediction Center on Twitter, for the wrong storm.

See also

- Weather of 2023
- Tornadoes of 2023
- Tornado outbreak of March 24–27, 2023
- List of Storm Prediction Center meso—gamma mesoscale discussions

References

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